

### **REMARKS**

Claims 35-38 and 40-69 are now pending in the application. By this paper, Claims 40, 63, 68, and 69 have been amended. The basis for these amendments can be found throughout the specification, claims, and drawings originally filed. No new matter has been added. The preceding amendments and the following remarks are believed to be fully responsive to the outstanding Office Action and are believed to place the application in condition for allowance. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **DRAWINGS**

The drawings stand objected to under 37 CFR § 1.83(a) as failing to show every feature of the claimed invention. Specifically, the Examiner asserts that the same variable duty cycle signal used to control the capacity of a compressor as well as a position of a valve is not shown in the drawings.

Applicants respectfully submit that the drawings disclose a controller in communication with both a compressor and a valve. Specifically, Applicants note that the compressor controller (52) is shown as being in communication with both a compressor (30) as well as an evaporator pressure regulator valve (45c). See Figure 5. Paragraph [0062] of the specification describes the controller (52) as being able to supply the same variable duty cycle control signal to both the compressor (30) and the evaporator pressure regulator valve (45c).

In light of the foregoing, Applicants respectfully submit that the features of the claimed teachings are adequately shown by the drawings as filed. Accordingly, reconsideration and withdrawal of the objection is respectfully requested.

#### **REJECTION UNDER 35 U.S.C. § 112**

Claims 35-38 and 40-69 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner asserts that the specification does not provide a detailed description of an embodiment in which the same variable duty cycle signal is used to control the capacity of a compressor and the position of a valve. This rejection is respectfully traversed.

Applicants direct the Examiner to Paragraph [0062], which recites an electrically controlled valve such as an evaporator pressure regulator valve (45c) being associated with a suction line exiting an evaporator. The specification notes that the evaporator pressure regulator valve (45c) may be a “pulse width modulated valve” that may be “controlled with the same variable duty cycle signal” as supplied to a compressor (30). In light of the foregoing, Applicants respectfully submit that a controller that supplies the same variable duty cycle control signal to modulate a capacity of a compressor and a position of a valve is adequately supported and enabled by the specification.

The Examiner admits that the aforementioned paragraph (Paragraph [0062]) discloses a controller that supplies the same control signal to both a compressor and a valve. However, the Examiner asserts that “no disclosure of such a system is provided nor shown in any of the figures” and that it is “not clear how the system of Figure 5 could be modified in order for ‘one’ variable duty cycle signal that is supplied to the

compressor” could be used to control the valves associated with each refrigeration case. Applicants respectfully submit that the description at Paragraph [0062] combined with Figure 5 adequately supports a controller that supplies the same variable duty cycle control signal to a compressor and a valve.

As noted above, Paragraph [0062] specifically describes a controller that supplies the *same* variable duty cycle control signal to both a compressor and a valve. Figure 5 shows the described evaporator pressure regulator valve (45c) as positioned proximate to an exit of an evaporator (42c), as described in Paragraph [0062]. Applicants respectfully submit that the Examiner’s confusion with regard to operation of the system shown in Figure 5 and described at Paragraph [0062] is largely due to the Examiner identifying expansion valves (44a-44c) as those controlled by the controller (30) with the variable duty cycle control signal. As outlined above, Paragraph [0062] describes controlling an evaporator pressure regulator valve (45c) associated with a suction line exiting the evaporator and not the identified expansion valves (44a-44c). Applicants respectfully submit that controlling the evaporator pressure regulator valve (45c) with the same variable duty cycle control signal supplied to the compressor is supported and enabled by at least Paragraph [0062] and the system shown in Figure 5.

In light of the foregoing, Applicants respectfully submit that Claims 35-38 and 40-69 are in condition for allowance. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Claims 38, 40-41, 55, 63-64, and 68-69 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the

Examiner asserts that there is “no operative relationship recited between the control of the system and the second sensor (i.e. the pressure sensor).” The Examiner also asserts that Claims 40-41, 63-64, and 68-69 recite that the controller uses a second sensor for producing a variable duty cycle control signal whereas parent Claims 35 and 51 recite that the controller uses the first sensor for producing the variable duty cycle control signal. These rejections are respectfully traversed.

Applicants note that the specification describes a controller that receives information from temperature sensors as well as pressure sensors for use by the controller in generating a variable duty cycle control signal. For example, the specification notes that temperature sensors (58(a), (b), (c)), as well as a pressure sensor (60) “collectively provide an indication of the load on the system.” See Paragraph [0061]. The specification further notes that the system may include a user input (142) that allows a user to specify whether the controller shall be operated using temperature sensors only or a combination of temperature and pressure sensors. See Paragraph [0068]. A decision logic module (166) is described as determining a duty cycle of the variable duty cycle control signal. See Paragraph [0075]. The decision logic module (166) receives information regarding the difference between actual and set point pressure from module (188) and receives information regarding the difference between a set point temperature and a condition temperature from module (162). See Paragraph [0072] and [0075] and Figure 9. The control module uses both the temperature and pressure information to determine a variable duty cycle control signal. See Paragraphs [0072]-[0075] and Figure 9.

Applicants respectfully submit that in light of the foregoing, a temperature sensor and a pressure sensor being in communication with a controller that supplies a variable duty cycle control signal is adequately supported by the specification.

With regard to Claims 38 and 55, Applicants submit that reciting that the control system of Claim 35 and the cooling system of Claim 51 further comprise a pressure sensor “in addition” to a first sensor and that the pressure sensor is “coupled to” a controller adequately describes the relationship between the pressure sensor and the controller. Applicants submit that one of ordinary skill in the art would understand that the pressure sensor is an additional sensor, apart from the first sensor, and that the pressure sensor being “coupled to” the controller allows at least one-way communication therebetween. Accordingly, Applicants respectfully submit that Claims 38 and 55 are adequate as written. Claims 68 and 69 have been amended to more particularly define the relationship between the first sensor, the second sensor, and the controller.

Applicants respectfully submit that Claims 38, 55, and 68-69 are allowable in their present form.

Applicants respectfully submit that Claims 40-41, 63-64, and 68-69 are allowable in their present form. Nonetheless, Applicants have amended Claims 40, 63, 68, and 69 to more particularly define the relationship between the first sensor, the second sensor, and the controller in producing a variable duty cycle control signal. In light of the foregoing, Applicants respectfully submit that Claims 40, 41, 63, 64, 68, and 69 are in condition for allowance. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

## CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: October 11, 2006

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